TAKUMI ： Professional Team and Outstanding Brand

MACHINERY CO., LTD.
Takumi
Respect, Teamwork, Innovation, Service

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Agent

2014.05 DESIGNED BY 886-4-2296-5959

H Series

H7 / H10 / H12 / H16

High Speed Double Column Machining Center

Box structure design, 3 axes linear guide ways, high speed & high precision.

CE APPROVED

ISO 9001 2000 CERTICH

ANAB ACCREDITED

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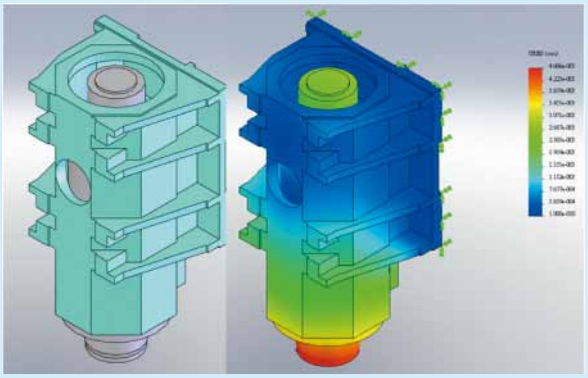
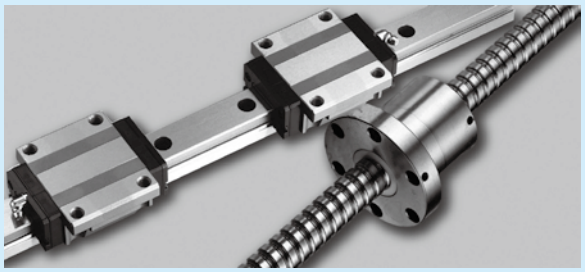
H Series

High Speed Double Column Machining Center



Extraordinary of head design

- The special design of the head uses linear guides. This allows the head to be much shorter and lighter, allowing much faster traversing and also reducing deflection issues by maintaining a constant distance from the guides to the spindle.



Linear Guides & Ball Screws

- 4~6 Block for liner guide ways on 3-axis ensure the consistent precision and prolong machine life.
- Takumi use the roller guide way on 3 axes with high loading structure and smooth dynamic moving, provide low abrasion & high accuracy.
- X/Y/Z axis ball screws and linear guides are lubricated by centralized auto lubrication system (Oil type).
- Absolute encoder motors are used in 3–axis feeding.

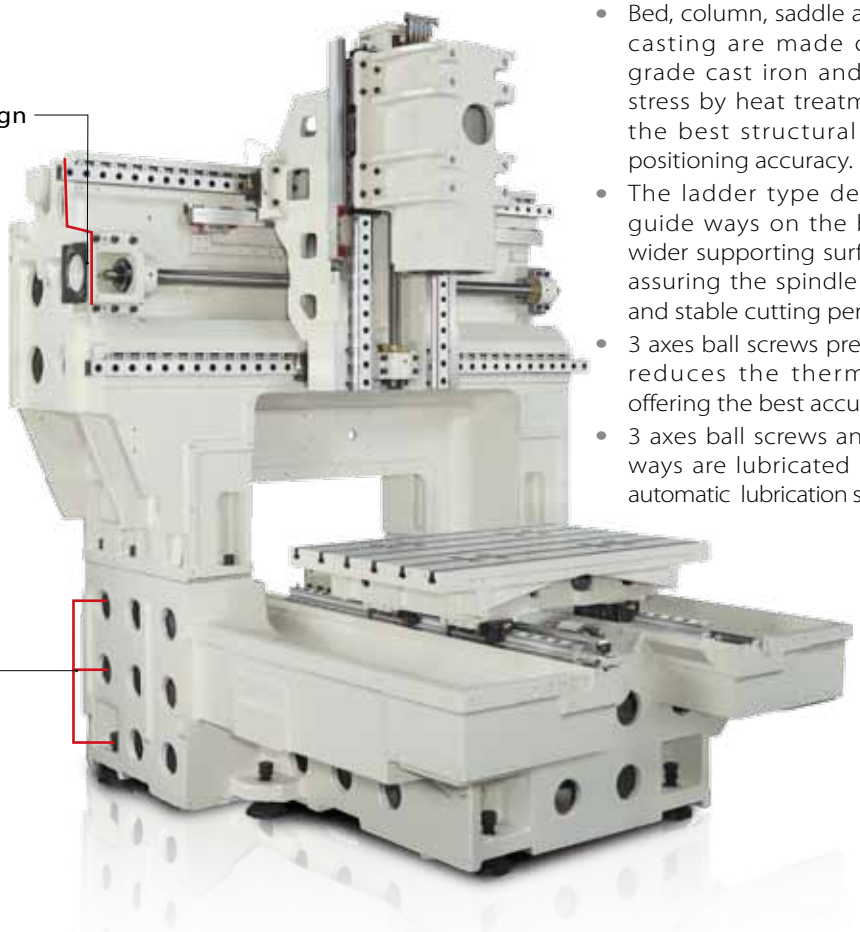
User Friendly Design

- Full enclosure (without top cover) provides a safe and clean operating environment. The top cover is optional for CE safety directives or machining needs.
- The swivel operation panel allows users to operate at any angle and position.
- Wide door width makes the loading and unloading of work-piece easier.
- Large windows on the door allow great visibility.
- Automatic magazine door can effectively protect magazine and tools from the damage of chips.
- Magazine enclosure protects operator's safety.

High Rigidity and High Stability Double Column Structure

- Bed, column, saddle and other main casting are made of Meehanite grade cast iron and released the stress by heat treatment, ensuring the best structural stability and positioning accuracy.
- The ladder type design of linear guide ways on the beam provide wider supporting surface for saddle, assuring the spindle of a powerful and stable cutting performance.
- 3 axes ball screws pretension design reduces the thermal variation, offering the best accuracy.
- 3 axes ball screws and linear guide ways are lubricated by centralized automatic lubrication system (oil type).

- The ladder type design of linear guide ways



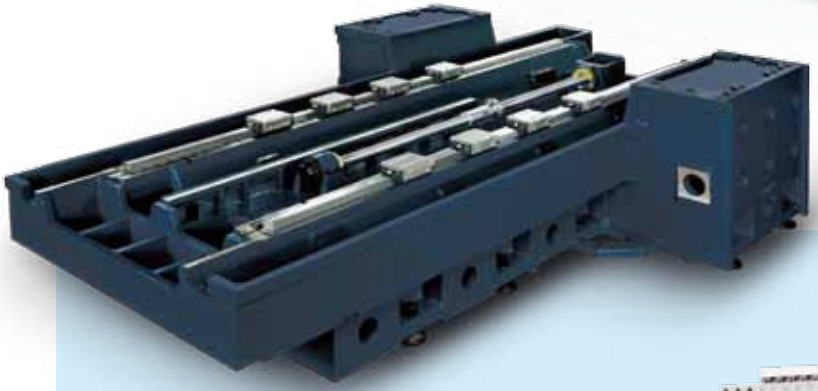
- 3 layer design

The achievement of Takumi's innovation and technology: The perfect performance of high speed and high accuracy.

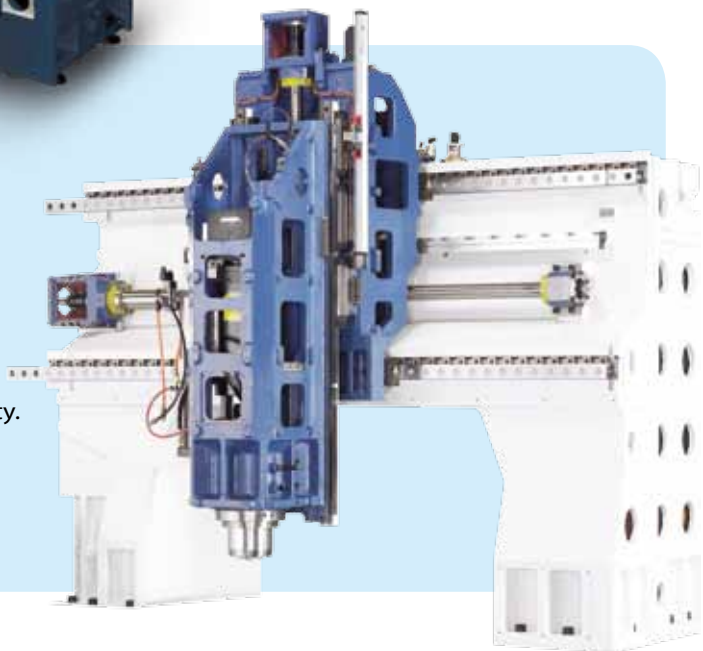
- H series is designed for the machining requirements from the industries of parts production and mold & die. 3 axes are equipped with roller type linear guide ways to meet the demand of high acceleration/deceleration, the maximum cutting feed rate ups to 30 m/min (H12/H16). By adopting 10000rpm~24000rpm high speed spindles, H series is widely used in the industries of 3C, automotive and mold machining.

- Wide door width makes the loading and unloading of work-piece easier.

- The swivel operation panel allows users to operate at any angle and position.



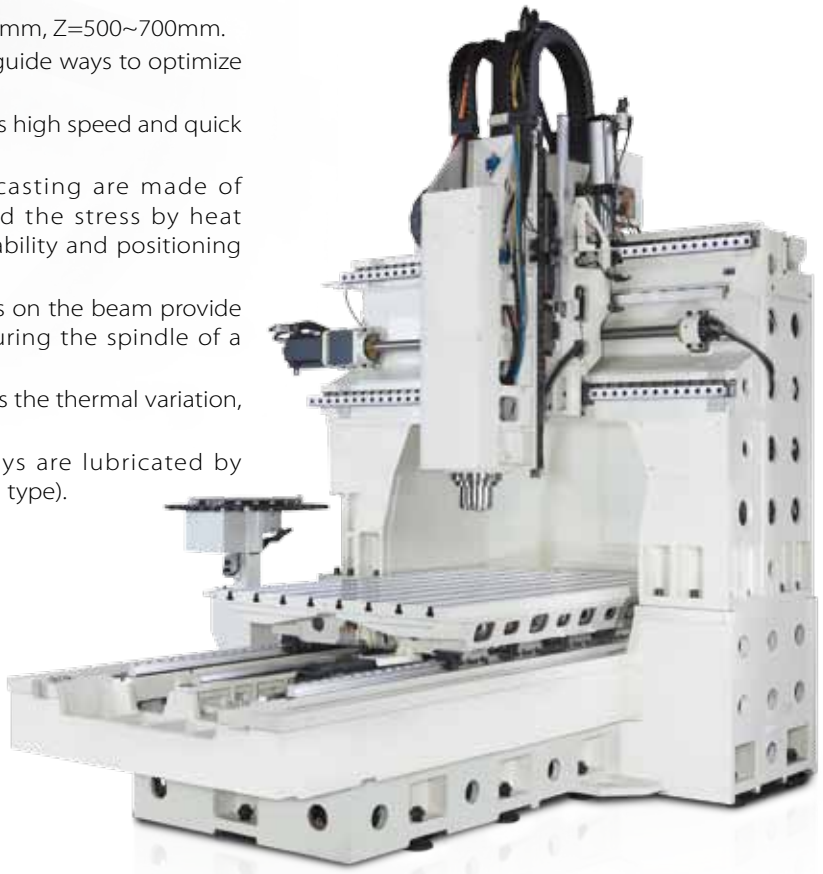
- Special color for customer

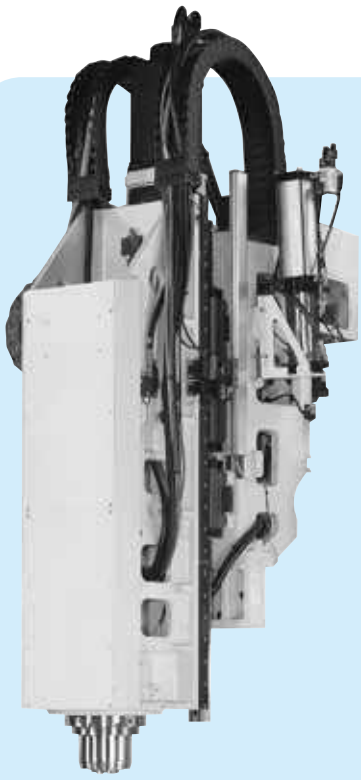


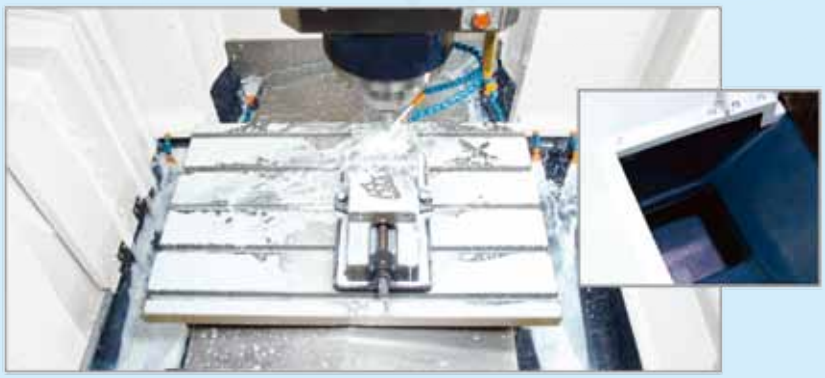
- T-shape bed provides the best rigidity and stability.
- Beam & column are made of one piece casting.

High Rigidity and High Stability Double Column Structure

- 3 axes travel: X=750~1600mm, Y=600~1300mm, Z=500~700mm.
- 3 axes are equipped with roller type linear guide ways to optimize acceleration/deceleration.
- Non-counter balance on spindle head allows high speed and quick response.
- Bed, column, saddle and other main casting are made of Meehanite grade cast iron and released the stress by heat treatment, ensuring the best structural stability and positioning accuracy.
- The ladder type design of linear guide ways on the beam provide wider supporting surface for saddle, assuring the spindle of a powerful and stable cutting performance.
- 3 axes ball screws pretension design reduces the thermal variation, offering the best accuracy.
- 3 axes ball screws and linear guide ways are lubricated by centralized automatic lubrication system (oil type).
- Absolute encoder motors are used in 3 axes feeding system to ensure the positioning accuracy.
- The device of oil & coolant separation on machine bed and oil skimmer on coolant tank prolongs the service life of coolant.
- Fully enclosed splash guard provides safety and clean operating environment.







- H12/H16 : 6 guide blocks on Z axis linear guide ways ensure the consistent precision of consecutive operation.
- The quantities of guide blocks on 3 axes are as below:

Model / Axis	H7	H10	H12	H16
X Axis	4	4	6	8
Y Axis	4	4	4	4
Z Axis	4	4	6	6

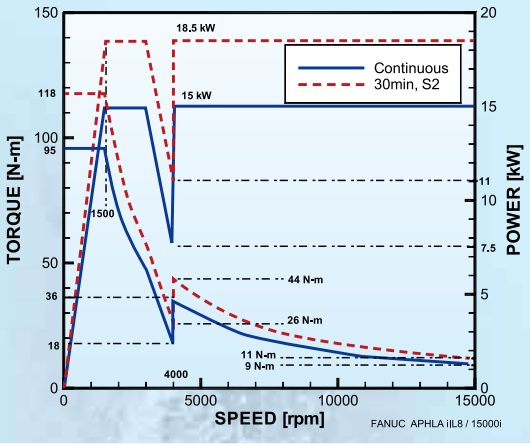
- The design of tilting bed surface and flushing coolant system on H7/H10 provides perfect performance of chip-removal.
  (H12/H16 are equipped with chip augers and coolant flushing system.)

High Accuracy and High Performance Spindle

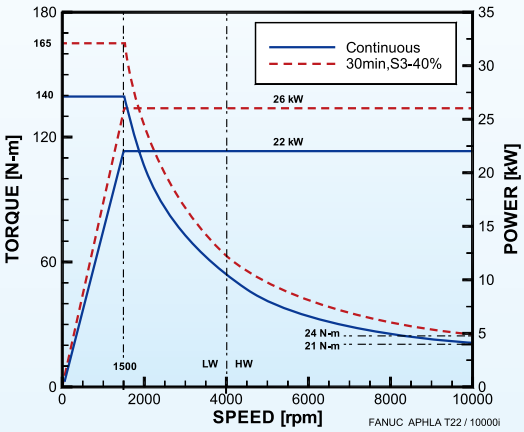
- H series provides direct-drive type spindle and built-in type spindle to meet different machining requirements. The spindle speed ranges from 10,000rpm~24,000rpm.
- Spindles are from professional spindle manufacturers, featuring high accuracy and high performance.
- The built-in thermal compensation system (optional: IBAG spindle only) decreases the effect of thermal variation, assuring the accuracy during operation.
- Spindle cooling system reduces thermal variation and prolongs working life of spindle.

■ Spindle Power & Torque Chart

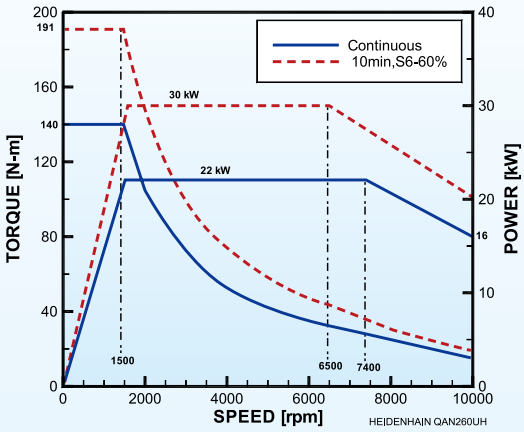
● Direct-drive type spindle, 15/18.5 kW, 15,000rpm (optional, for FANUC controller)



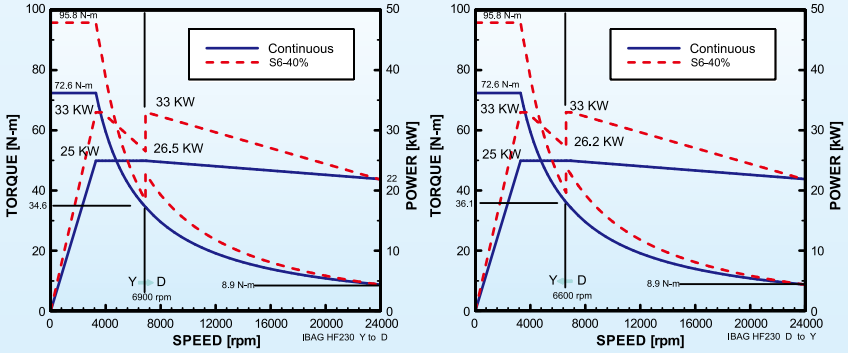
● Direct-drive type spindle, 22/26 kW, 10,000rpm (optional , for FANUC controller)



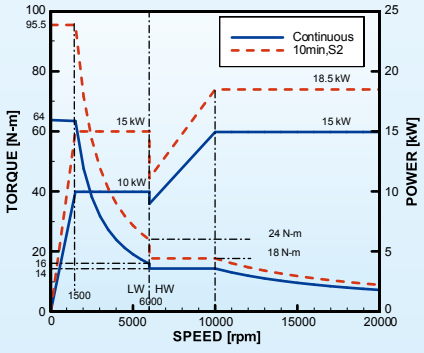
● Direct-drive type spindle, 22/30 kW, 10,000rpm (optional, for HEIDENHAIN controller)



● Built-in type spindle (IBAG), 25/33 kW, 24,000rpm (optional)



● Built-in type spindle , 15/18.5 kW, 20,000rpm (standard, for FANUC controller)



ATC

■ Armless type ATC (standard)

- H7/H10/H12：16T，HSK-A63
- H16：20T，HSK-A63

■ Arm type ATC (optional)

- H7/H12：24T，BBT40
- H10/H12：30T，BBT40
- H12: 24T , BBT50
- H16：30/48/60T，BBT40
- H16 : 32/60T，BBT50

Optional Accessories

• Oil mist collector

• Linear scales (3 axes)

• Workpiece measurement system

• Tool length measurement system

• Ball screw cooling system

ISO9001:2008 Quality Management

• Ballscrew adjustment

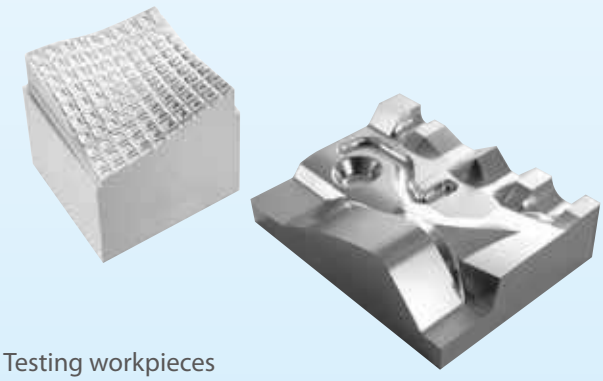
• Ball bar test

• Laser inspection

• Spindle test

• Temperature control room

• Parts inspection before installation



• Testing workpieces

H7 Dimensions

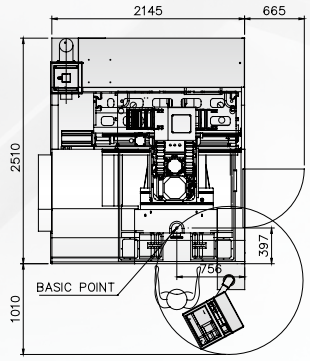
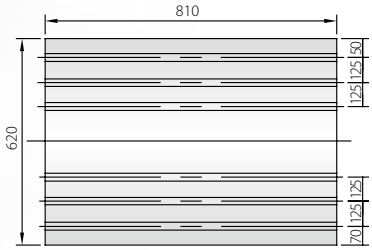
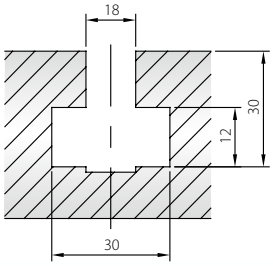
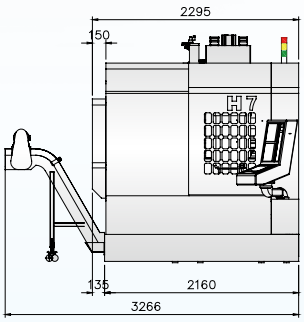
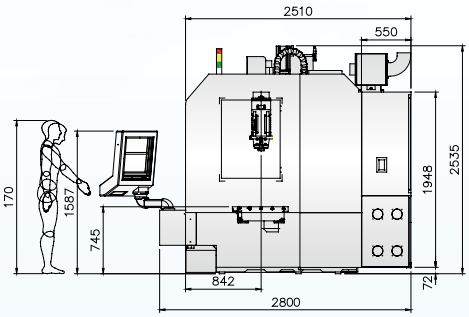


Table & T-slot









H10 Dimensions

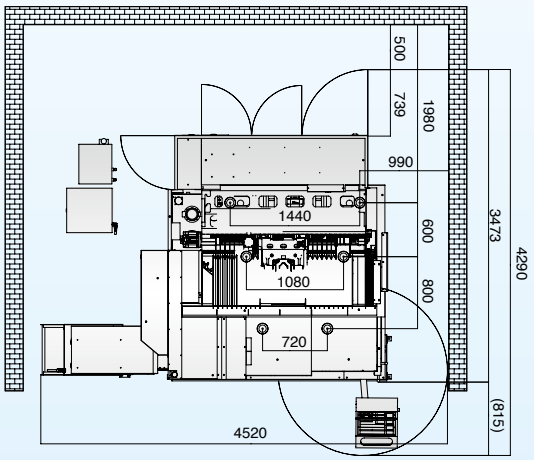
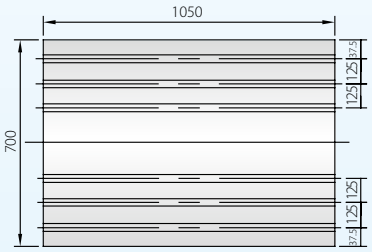
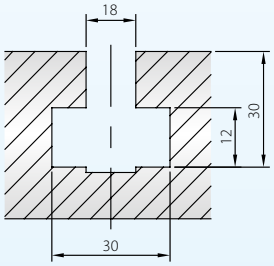
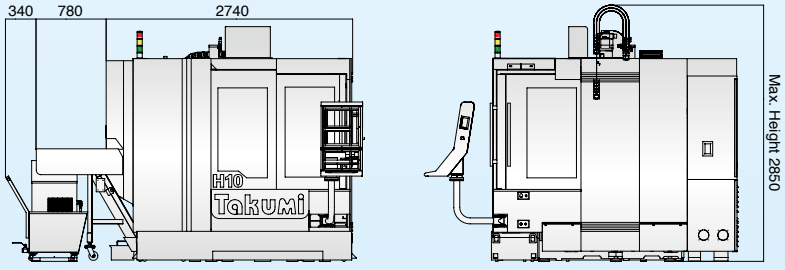


Table & T-slot

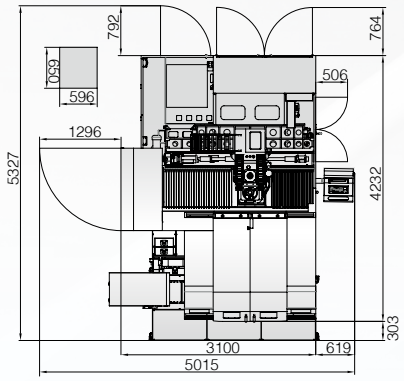




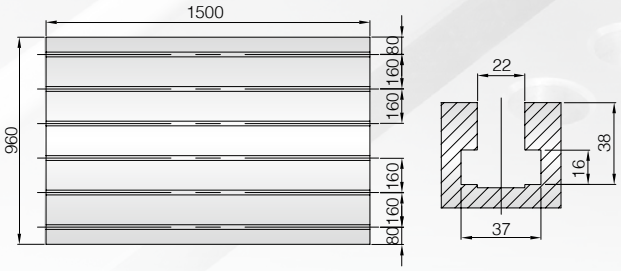


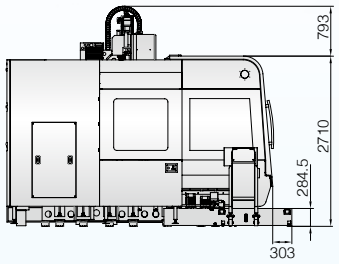
Unit：mm

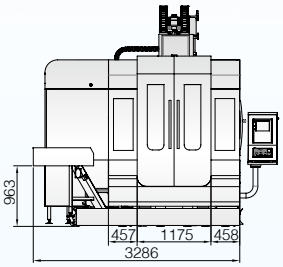
H12 Dimensions

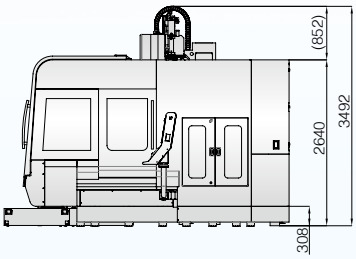


H12 Table & T-slot

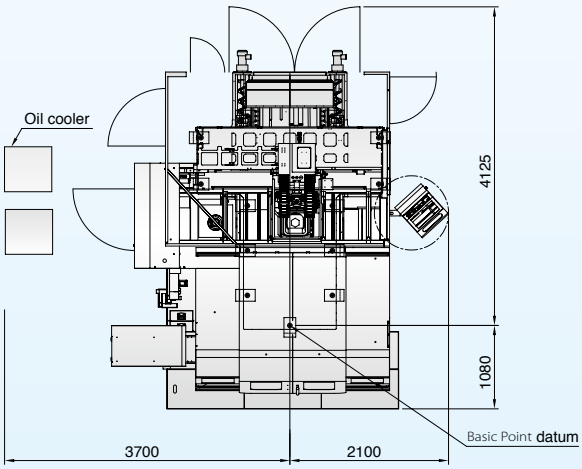




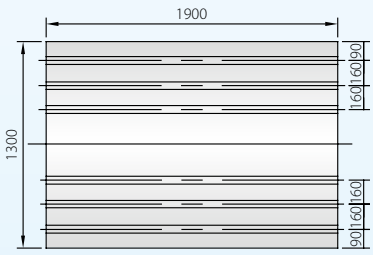


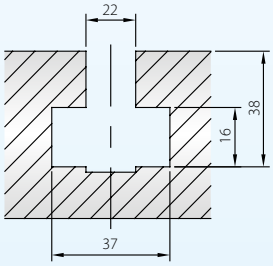


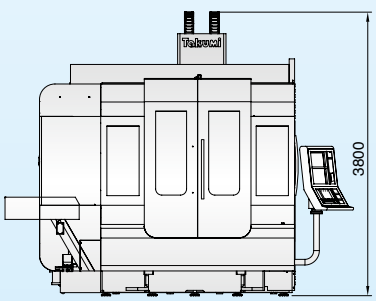
H16 Dimensions

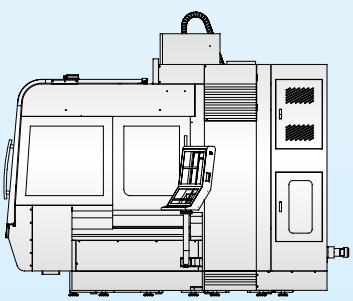


H16 Table & T-slot









Unit：mm

Specifications

Travel	Unit	H7	H10	H12	H16
X axis	mm	750	1020	1350	1600
Y axis	mm	600	700	950	1300
Z axis	mm	500		600	700
Distance from spindle nose to table	mm	150~650	180~680	200~800	200~900
Distance between columns	mm	850	1080	1060	1500
Table					
Dimension	mm	810×620	1050×700	960×1500	1900×1300
Max. load	kg	500	800	1800	6000
T-slot (width×pitch×number)	mm	18×125×5	18×125×6	22×160×6	22×160×8
Spindle					
Spindle type	—	Built-in			
Spindle speed	rpm	20000			
Spindle motor power (cont./30 min rated)	kW	15/18.5			
Spindle taper	—	HSK-A63			
Feed					
Rapid traverse（X/Y/Z）	m/min	32/32/32		30/30/30	
Cutting feed rate	mm/min	1~20000			
Motor power（X/Y/Z）	kW	X/Y/Z=4.5		X/Y/Z=7/4/7	X=14, Y/Z=5.5
ATC & Magazine					
ATC type	—	Armless			
Magazine capacity	pcs	16(#40)		16(#40)	20T(#40)
Max. tool diameter (next pockets empty)	mm	105/120		105/110	105/150
Max. tool length	mm	300			
Max. tool weight	kg	7			
Tool shank	—	HSK-A63			
Space & System Requirement					
Pneumatic pressure	kgf/cm^2	6			
Electrical power consumption	kVA	50		60	75
Max. floor space（W×L×H）	mm	2200×2800×2650	3800×4300×3000	4540×3890×3510	5750×5200×3800

■ Standard Accessories

- FANUC 31iMB controller
- 20000 rpm,#HSK-A63, Built-in type spindle
- 16T, #HSK-A63, armless type ATC (H7/H10/H12)
- 20T, #HSK-A63, armless type ATC (H16)
- Spindle air blast
- Cutting air blast
- Spindle cooler
- Cutting coolant system
- Centralized automatic lubrication system (oil)
- 3 axes absolute encoder motors
- Fully enclosed splash guard
- Working lamp
- Indication lamp
- Washing gun & air gun
- Oil skimmer
- Coolant tank & coolant flushing system (H7/H10/H12)
- Steel belt type chip conveyor (H16)
- Manual pulse generator
- Ethernet card & RS-232C interface
- Air conditioner for electrical cabinet
- Tool kits
- Anchor bolts, leveling blocks and bolts
- Operation manuals, PLC, electrical circuit diagrams
- One-year machine warranty
  (Spindle warranty depends upon spindle manufacturer)
- Controller warranty
  (FANUC : 24 months from shipping date)

■ Optional Accessories

- MITSUBISHI M730V controller
- HEIDENHAIN iTNC 530 controller
- SIEMENS 840D controller
- Direct-drive type spindle
  15000rpm, BBT-40 (H7/H10)
  10000rpm, BBT-50 (H16)
- Built-in type spindle (IBAG)
  24000rpm, HSK-A63 (Except H12)
- ATC
  24T, #40, arm type ATC (H7/H12)
  30T, #40, arm type ATC (H10/H12)
  30/48/60T, #40, arm type ATC (H16)
  24T,#50, arm type ATC (H12)
  32/60T,#50, arm type ATC (H16)
- Coolant through spindle
- Spindle thermal compensation system
  (For IBAG spindle only)
- Ball screw cooling system
- Grease type lubrication system
  (for machine equipped graphite cutting set)
- Oil mist device
- Oil mist collector
- Linear scales (3 axes)
- Workpiece measurement system
- Tool length measurement system
- Rotary table (The 4th/5th axis)
- Steel belt type chip conveyor (H7/H10/H12)
- Scraper type chip conveyor(H7/H10/H12)
- Transformer
- CE (CE area only)

*** All data listed here are based on machines with standard accessories. Data will be altered according to different options. For detailed information, please refer to local dealers or Takumi sales.**
*** Takumi reserves the right on the modifications of the machine specifications.**